

Guidance On Installation And Use Of A Travel Aid For Android Devices

Background - The published Motor Vehicle Use Map (MVUM) is the official document-of-record that designates roads, trails, and areas open to motorized use on Coconino National Forest.

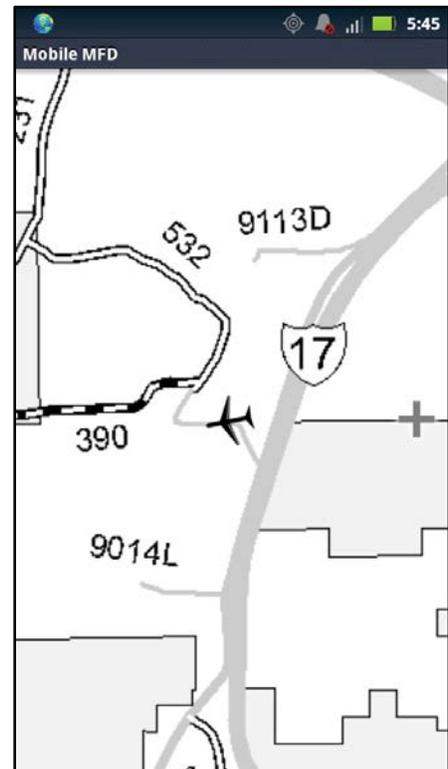
The published MVUM contains important information about road, trail, and area designations that motorists should always have close at hand. However, the MVUM's large size could make it difficult to handle, or refer to, while travelling, and some motorists have found that the MVUM's small map scale and spare design make it difficult to locate themselves with confidence along the roads and trails that it portrays.

In response to these issues, Coconino National Forest has developed a Travel Aid for Android devices (illustrated at right on a Motorola Bionic phone) that is designed to help motorists locate their position:

- Along designated roads or trails,
- Within areas open to motorized cross-country travel, and
- Relative to motorized dispersed camping corridors.

Assumptions – This guidance assumes that readers have these basic skills when operating their device.

- Install and use apps from the Google Play site.
- Connect their device to a PC using a USB cable.
- Download internet files to a PC or Android device.
- Copy, paste, and unzip files.



Travel Aid requirements – These items will facilitate installation and use of the Travel Aid.

- **Android smartphone or tablet** running Android 2.2, or greater.
- **Mobile MFD** app (free) from the Google Play site. This app was designed as a moving flight display, so its position marker appears as an airplane.
- **GeoTIFF map files** (free) from Coconino National Forest at <http://go.usa.gov/PEa>.

Install the Mobile MFD app – WiFi or cellular coverage is required. Touch the device’s Google Play icon, sign in to a free Google Play account, search for, and install the free Mobile MFD app.

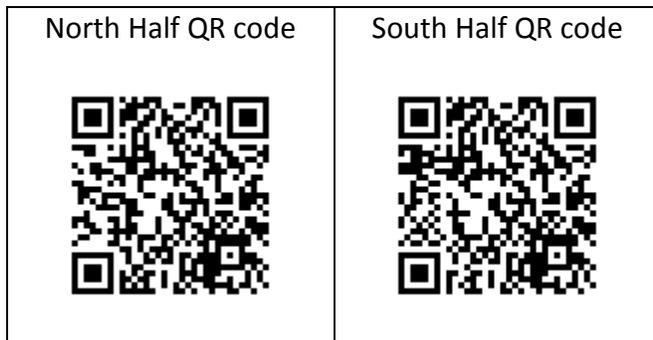


Download the Travel Aid’s map files –Use a PC to browse to <http://go.usa.gov/PEa>, and download the **North Half** and the **South Half** zipped map files (.zip file extension) to the PC.

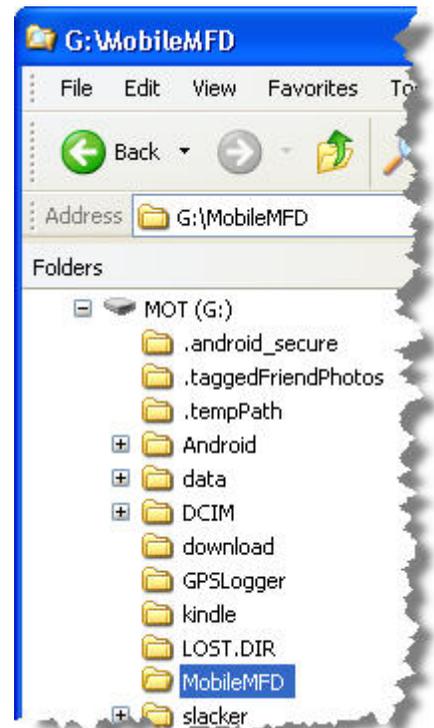
Use the PC’s Windows Explorer utility to unzip, and then rename, each file to something more meaningful, like Coconino_Mvum_North.tif or Coconino_Mvum_South.tif.

The North Half and South Half geoTIFF map files will have an unzipped size of about 128 MB and 171 MB, respectively.

Optional method - Users wishing to download the zipped map files to their device wirelessly will need to install a QR code scanner app (to access the files wirelessly), and a Zip-capable file manager app (to accept and extract the zipped map files). Scan the North Half and the South Half QR codes below, or at <http://go.usa.gov/PEa>.



Install the Travel Aid’s geoTIFF map files - Connect the Android device to the PC with a USB cable, and use Windows Explorer to copy and paste the unzipped geoTIFF files from the PC to the device’s MobileMFD folder, as shown at right. Then, disconnect the device from the PC.



Start Mobile MFD on the device by touching its icon, reading, and responding to its Disclaimer. Once Mobile MFD has opened, touch the device’s **Menu** key, and then touch Mobile MFD’s **Maps** key.



Touch the device's **Menu** key again, touch Mobile MFD's **Import Map** key, browse to the device's MobileMFD folder, select a geoTIFF file, and specify a compression type of "None".

Mobile MFD will first build a digest of the map's content, and then will process the map's content in three cycles, as shown at right. Processing will take several minutes, so be patient.

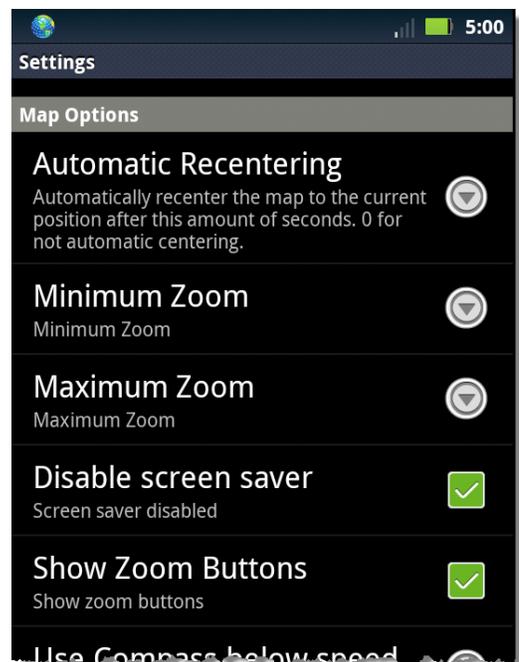
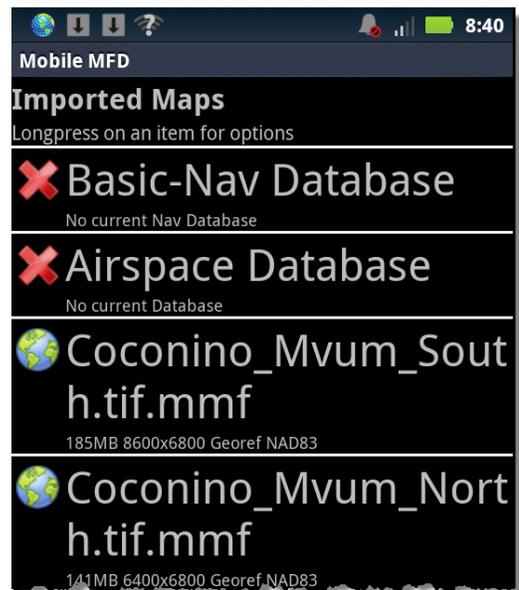
Repeat the Import Map process for each geoTIFF map file. When processing is complete, the device's MobileMFD folder will contain a moving map file (.mmf file extension) corresponding to each of the original geoTIFF files, as illustrated at right.

Once processed, geoTIFF files may be deleted from the device to reclaim disc space.

All map content is now cached on the device, so WiFi or cellular coverage while travelling is not required. Also, users won't have to continuously stream map content against their data plan.

Configure Mobile MFD – To set **Map Options**, press the device's **Menu** key, press Mobile MFD's **Settings** key, and scroll to the bottom of the **Settings** list. Options may be set as desired, of course, but here are several recommendations.

- **Automatic Re-centering** – 10 seconds
- **Minimum Zoom** – 0.5
- **Maximum Zoom** – 3
- **Disable Screen Saver** – Disable
- **Show Zoom Buttons** - Show



Use the Travel Aid - Start Mobile MFD on the device by touching its icon, reading, and responding to its Disclaimer. Once Mobile MFD has opened, touch the device's **Menu** key, touch Mobile MFD's **Maps** key, and select a map from the list of imported maps.

The Travel Aid's map will appear and, once a GPS position is established, will center on the user's location, as indicated by an airplane's silhouette, right.



GPS reception is indicated by the steady presence of this icon  on the device's status bar.

Users may pan, zoom out, or zoom in using the flick, pinch, or expand gestures on the multi-touch screen, as well as Mobile MFD's zoom in (+) and zoom out (-) keys. Remember, Mobile MFD will automatically re-center the map on the current GPS position at the interval specified when setting Map Options.

Exit the Travel Aid - Touch the device's **Menu** key, and then touch Mobile MFD's **Exit** key. This action closes the Travel Aid's app and turns off the GPS receiver to reduce power consumption.

Press the device's **Home** key if the GPS icon does not extinguish when the app is closed.

Limitations of the Travel Aid – The Travel Aid has several shortcomings, as described below.

- The map view is permanently set to “north up”, and cannot be set to “track up”.
- Road and trail labels are static (part of the map image) and, depending on the device's screen size and the map's current zoom level, may not appear on-screen. If necessary, zoom out, or pan the view to locate a road's label.
- GPS positioning consumes more power than normal operation, so it is recommended practice while travelling to power devices with an automotive power adapter approved for the device.
- The published MVUM's marginalia (map legend and explanation, tables, purpose, prohibitions, operator responsibilities, etc.) have been removed to reduce file size, so users should keep a copy of the published MVUM close at hand for reference.
- Map file size is relatively large and, in total, will consume about 327 MB of space on the device.
- GPS reception may be lost, or intermittent, when travelling in steep terrain, dense overhead vegetation, or any situation that limits the GPS receiver's view of the sky.